NOTICE

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FCC NOTICE

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
NOTE: This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses, generates, and can radiate radio frequency energy and if not installed in accordance with the operator's manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.
WARNING: Changes or modifications made to this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

INDUSTRY CANADA NOTICE

This digital apparatus does not exceed the class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.
Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

VCCI NOTICE

This is a class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

この装置は，情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

CLASS A ITE NOTICE

WARNING: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

SAFETY INFORMATION

CLASS 1 LASER TRANSCEIVERS

THE GPIM-08 AND GMIP-09 GIGABIT PORT INTERFACE MODULES, USE CLASS 1 LASER TRANSCEIVERS. READ THE FOLLOWING SAFETY INFORMATION BEFORE INSTALLING OR OPERATING THESE MODULES.

The Class 1 laser transceivers use an optical feedback loop to maintain Class 1 operation limits. This control loop eliminates the need for maintenance checks or adjustments. The output is factory set, and does not allow any user adjustment. Class 1 Laser transceivers comply with the following safety standards:

- 21 CFR 1040.10 and 1040.11 U.S. Department of Health and Human Services (FDA).
- IEC Publication 825 (International Electrotechnical Commission).
- CENELEC EN 60825 (European Committee for Electrotechnical Standardization).

When operating within their performance limitations, laser transceiver output meets the Class 1 accessible emission limit of all three standards. Class 1 levels of laser radiation are not considered hazardous.

SAFETY INFORMATION
CLASS 1 LASER TRANSCEIVERS
LASER RADIATION AND CONNECTORS

When the connector is in place, all laser radiation remains within the fiber. The maximum amount of radiant power exiting the fiber (under normal conditions) is -12.6 dBm or 55 x 10^{-6} watts.

Removing the optical connector from the transceiver allows laser radiation to emit directly from the optical port. The maximum radiance from the optical port (under worst case conditions) is 0.8 W cm^{-2} or 8 x 10^{3} W m^{-2} sr-1.

Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.

DECLARATION OF CONFORMITY

Application of Council Directive(s):	**89/336/EEC** **73/23/EEC**
Manufacturer's Name:	**Enterasys Networks, Inc.**
Manufacturer's Address:	**35 Industrial Way** **PO Box 5005** **Rochester, NH 03867**
European Representative Name:	**Mr. Jim Sims**
European Representative Address:	**Enterasys Networks Ltd.** **Nexus House, Newbury Business Park** **London Road, Newbury** **Berkshire RG14 2PZ, England**
Conformance to Directive(s)/ Product Standards:	**EC Directive 89/336/EEC** **EC Directive 73/23/EEC** **EN 55022** **EN 55024** **EN 60950** **EN 60825**
Equipment Type/Environment:	**Networking Equipment, for use in a Commercial or Light Industrial Environment.**

Enterasys Networks, Inc. declares that the equipment packaged with this notice conforms to the above directives.

AGENCY STANDARDS

Safety
Meets the requirements of UL 1950, CSA C22.2 No. 950, EN 60950, EN 60825, IEC 950, and 73/23/EEC.

Electromagnetic Compatibility
Compliant with the requirements of FCC Part 15, CSA C108.8, EN 55022, VCCI V-3, EN 55024, EN 61000-3-2, EN 61000-3-3, and 89/336/EEC.

ER16-HFX39-24 & ER16-HFX31-24

The ER16-HFX39-24 and ER16-HFX31-24 are 24-port, 100Base-FX EthernetModules for the ER16 platform. The ER16-HFX39-24 and ER16-HFX31-24 use 24 MT-RJ connectors and deliver full-function Layer-2, Layer-3, and Layer-4 switching and routing.

SPECIFICATIONS

Ports
24 Ports with 24 MT-RJ connectors

ASIC Type
T-series (Enterasys)

Network Interfaces
MT-RJ Connectors

Switch Method
Address-based and Flow-based.

Queue Buffer
Packet memory size: 4MB per port

Physical Dimensions
Size: 52.9 cm H x 2.9 W x 40.1 D (20.9 in. H x 1.15 W x 15.8 D)
Weight: 3.27 kg (7.2 lbs)

Power Consumption
BTU/hr = 306
AC Volt Amps = 90

Temperature
Operating: 41° to 104° F (5° to 40° C)
Storage: -22° to 164° F (-30° to 73° C)

Humidity
15% to 90% (non-condensing)

CONNECTIVITY GUIDELINES

ER16-HFX31-24

Table 1 100Base-FX Multi-Mode Fiber Specifications

Fiber Diameter	Modal Bandwidth	Range	Connector
62.5/125 µm	160 MHz/km	2-220 m (7-722 ft)	MT-RJ
	200 MHz/km	2-275 m (7-902 ft)	MT-RJ
50/125 µm	400 MHz/km	2-500 m (7-1641 ft)	MT-RJ
	500 MHz/km	2-550 m (7-1805 ft)	MT-RJ

ER16-HFX39-24

Table 2 100Base-FX Single-Mode Fiber Specifications

Fiber Diameter	Modal Bandwidth	Range	Connector
10/125 µm	N/A	2-10000 m (6.2 mi)	MT-RJ

OPTICS

Table 3 ER16-HFX31-24 Multi-Mode 1300 nm

Receiver Sensitivity		Transmit Power 62.5/125 µm		Transmit Power 50/125 µm	
Minimum	-31.8 dBm	Minimum	-20 dBm	Minimum	-23.5 dBm
Maximum	-14 dBm	Maximum	-14 dBm	Maximum	-14 dBm

Table 4 ER16-HFX39-24 Single-Mode 1300 nm

Receiver Sensitivity		Transmit Power	
Minimum	-31.8 dBm	Minimum	-20 dBm
Maximum	-8 dBm	Maximum	-14 dBm

LEDs

Table 5 LED Indicators

LED	Condition	Status
Link	Green	A valid link has been established on the port.
Activity	Flashing Yellow	Traffic is passing through the port.
Online	Green	The module is online, or the module was hotswapped successfully.
Offline	Yellow	The module is receiving power, but is dormant or hotswapped out.

INSTALLING THE MODULE

WARNING: Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.

ELECTRICAL HAZARD: Only qualified personnel should perform installation procedures.

Handling the Module

CAUTION: The ER16-HFX39-24 and ER16-HFX31-24 are designed for slots 1-7 or 9-16 only, and are easily damaged by electrostatic discharge.

To prevent electrostatic damage, observe the following guidelines:

- Do not remove the module from its packaging until you are ready to install it.
- Do not touch any of the module's pins, connectors or components.
- Hold the module only by its edges or front panel.
- Wear an anti-static wristband connected to a suitable earth ground whenever handling the module.
- Store or transport this module only in appropriate anti-static packaging.

Equipment Checklist

After unpacking the ER16-HFX39-24 or ER16-HFX31-24, check the contents of the box to be sure you received the following items:

- One ER16-HFX39-24 or ER16-HFX31-24 module in anti-static bag
- One disposable anti-static wristband

Tools

This installation requires the following tools:

Anti-static wristband

Flathead screwdriver

Preliminary Setup

Hotswap

You may install this module into a live system without powering off the device. However, do not remove an active module from a live system except under the following conditions:

- Press the **Hotswap button**. The **Online LED** will turn **off** and the **Offline LED** will turn **on**.
- **Remove the module**.

OR...

- **Enter the following** from the CLI and click enter: **Enable -> System -> Hotswap -> Out -> Slot -> #**. The **Online LED** will turn **off** and the **Offline LED** will turn **on**.
- **Remove the module**.

Firmware Image Requirements

Version 8.3.0.0 or later.

Instructions

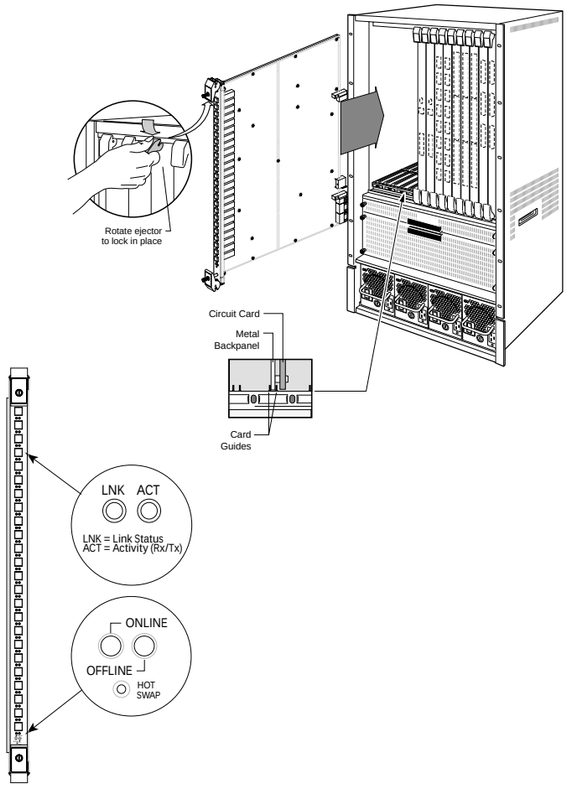
CAUTION: Before performing any upgrade or installation, ensure that you are properly "grounded" to avoid electrostatic discharge.

1. If a coverplate is installed in the slot where you will insert the module, **remove the coverplate**: loosen the screws on the ejectors until the screws pop out, then open the ejectors and pull out the plate.
2. **Open the ejectors** at the top and bottom of the module.
3. **Align the metal backpanel of the module with the card guides** at the top and the bottom of the slot opening, as shown in Figure 1.

NOTE: Make sure that the metal backpanel of the module—not the circuit card—is between the card guides. Check both the upper and lower tracks.

4. **Slide the module all the way into the slot**, firmly but gently pressing to ensure that the pins on the back of the module are completely seated in the backplane.
5. To lock the ER16-HFX39-24 or ER16-HFX31-24 into the slot, **close the ejectors**. Using a flathead screwdriver, tighten the screw on each ejector.

Figure 1 Install the ER16-HFX39-24 or ER16-HFX31-24



TROUBLESHOOTING

Proper Boot Sequence

- Offline LED lights at power-up.
- Port LEDs flicker briefly during system boot while ports initialize.
- Online LED turns on once module is active.

Common Errors

- The ER16 is not powered up.
- The module is not properly seated in the slot.
- Connectors on both ends of the cable are not properly engaged. The cable attached to the port did not click into place or is not properly seated.

Helpful CLI Commands for Debugging

- **System show hardware**
- **System show version**
- **System show bootlog**

ADDITIONAL INFORMATION

For additional information about installing this module or to learn more about what capabilities are included in the firmware release you are using, visit the Enterasys Networks web site.

Getting Help

For additional support related to the Common CLI syntax or this document, contact Enterasys Networks using one of the following methods:

World Wide Web	http://www.enterasys.com/
Phone	(603) 332-9400
Internet mail	support@enterasys.com
FTP **Login** **Password**	ftp://ftp.enterasys.com anonymous your email address
To acquire the latest image for this product and any available release notes	http://www.enterasys.com/download
Additional documentation	http://www.enterasys.com/support/manuals

To send comments or suggestions concerning this document, contact the Technical Writing Department via the following email address:
TechWriting@enterasys.com
Please include the document Part Number in the email message.

Before contacting Enterasys Networks for technical support, have the following information ready:

- Your Enterasys Networks service contract number
- A description of the failure
- A description of any action(s) taken to resolve the problem (e.g., changing mode switches, rebooting the unit)
- The serial and revision numbers of all involved Enterasys Networks products in the network
- A description of your network environment (layout, cable type, etc.)
- Network load and frame size at the time of trouble (if known)

ER16-HFX39-24
ER16-HFX31-24

Quick Start

Web Site: http://www.enterasys.com/

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